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HPL/PV/LBS/02-23



SWITCH DISCONNECTOR

Optimized solution

For DC, PV applications & Industrial usages



Salient Features

- High performance switching in a compact frame
- Safe and reliable operation
- Provide safe electrical isolation even at low voltages and up to 1500VDC
- Double positive break position indications
- Quick make and quick break mechanism ensures safe and independent manual operation
- Symmetric pole design for making connections independent of polarity
- Low power losses resulting in enhanced efficiency
- High temperature withstand capacity
- Products for 800V AC & 440V AC application
- Reference standard IEC 60947-3



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SWITCH DISCONNECTOR Optimized solution

For DC & PV applications

HPL make DC Isolators are manually operated switch disconnectors. They are specifically designed for PV application and are extremely rugged & durable. They can be used in power system with rated voltage upto 1000VDC / 1500VDC. They quick make and break under load conditions & provide safe electrical isolation even at low voltages and up to 1500VDC.

Operating mechanism

Single handed operated quick make quick break mechanism for the entire range.

Direct operation handle

The pad lockable handle is mounted directly on the cubicle load break switch and is lockable in OFF position.

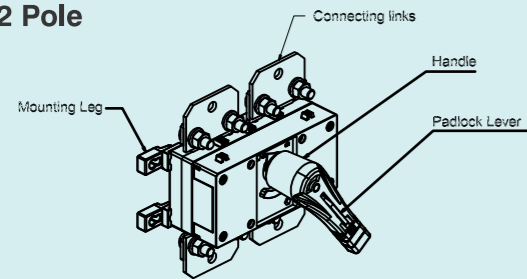
Door interlocked external operation handle

The pad lockable handle is mounted on the panel door and lockable in OFF position.

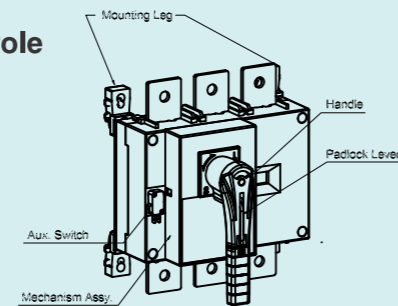
The external front operation ensures that the door is locked in on position.

Direct operation handle

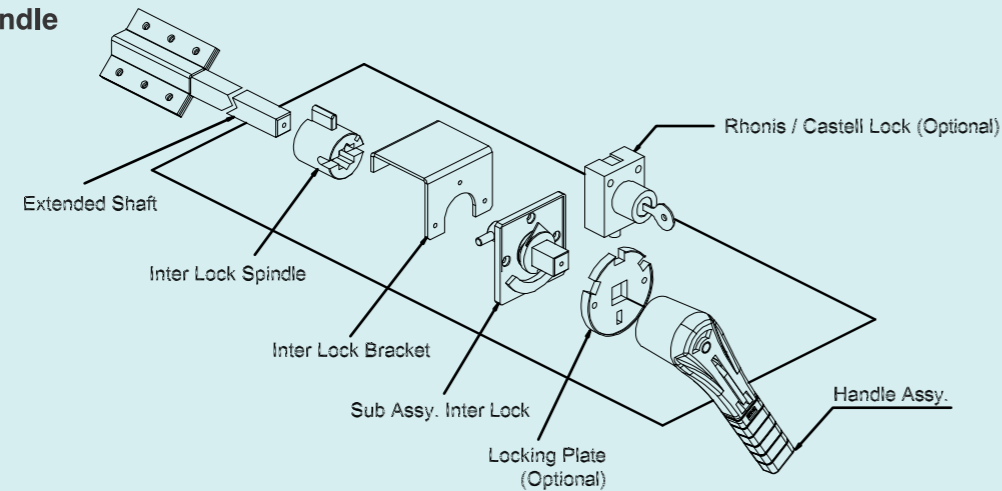
2 Pole



3 Pole



Door interlocked external operation handle



Specification (100A to 630A, 2 Pole, 1000VDC)

Reference standard									
Reference standard:	IEC 60947-3								
Technical data									
Rated Operational current (I _n)	100A	125A	160A	200A	250A	315A	400A	500A	630A
Conventional free air Thermal current (I _{th}) @ 40°C	100A	125A	160A	200A	250A	315A	400A	500A	630A
Conventional Thermal current (I _{thc}) Enclosed	100A	125A	160A	200A	250A	315A	400A	500A	630A
Number of poles	2								
Rated impulse withstand voltage U _{imp} (kV)	12								
Rated Insulation voltage U _i (Vdc)	1500	1500	1500	1500	1500	1500	1500	1500	1500
Rated Operational voltage U _e (Vdc)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated short time withstand capacity 1 sec kA	5	5	5	5	5	10	10	10	10
Power Loss W	8	13	17	26	40	12	16	25	40
Utilization category	DC-21B								
Pollution degree	3								
Mechanical durability (operating cycles without load)	10000								
Electrical durability (operating cycles with load)	300	300	300	300	300	200	200	200	200
Handle type	Front operated								
Operating Torque (N-m)	12	12	12	12	12	15	15	15	15
Operating temperature	-25°C to 55°C								
Operating Mechanism	One hand operated with Quick make & quick break type mechanism								
Maximum Copper cable cross-section (mm ²)	35	50	70	95	120	185	240	2x150	2x185
Terminal width (mm)	25	25	25	25	25	45	45	45	45
Terminal Bolt (mm)	M10x35	M10x35	M10x35	M10x35	M10x35	M12x40	M12x40	M14x40	M14x40
Terminal Bolt tightening torque (N-m max.)	50	50	50	50	50	85	85	140	140
Weight / unit (Kgs)	2.1	2.1	2.1	2.1	2.1	4.8	4.8	4.8	4.8



Specification (100A to 630A, 2 Pole & 3 Pole, 1500VDC)

Reference standard										
Reference standard:	IEC 60947-3									
Technical data										
Rated Operational current (In)		100A	125A	160A	200A	250A	315A	400A	500A	630A
Conventional free air Thermal current (Ith) @ 40°C		100A	125A	160A	200A	250A	315A	400A	500A	630A
Conventional Thermal current (Ithe) Enclosed		100A	125A	160A	200A	250A	315A	400A	500A	630A
Number of poles	2 & 3									
Rated impulse withstand voltage Uimp (kV)	12									
Rated Insulation voltage Ui (Vdc)		1500	1500	1500	1500	1500	1500	1500	1500	1500
Rated Operational voltage Ue (Vdc)		1500	1500	1500	1500	1500	1500	1500	1500	1500
Rated short time withstand capacity 1 sec kA	2P	10	10	10	10	10	15	15	15	15
	3P	5	5	5	5	5	10	10	10	10
Power Loss W	2P	5	6	8	12	16	15	24	28	40
	3P	8	13	17	26	40	12	16	25	40
Utilization category	DC-21B									
Pollution degree	3									
Mechanical durability (operating cycles without load)	2P	10000	10000	10000	10000	10000	8000	8000	5000	5000
	3P	10000	10000	10000	10000	10000	10000	10000	10000	10000
Electrical durability (operating cycles with load)	2P	1500	1500	1500	1500	1500	1200	1200	1000	1000
	3P	300	300	300	300	300	200	200	200	200
Handle type	Front operated									
Operating Torque (N-m)	2P	9.5	9.5	9.5	9.5	9.5	11	11	17	17
	3P	12	12	12	12	12	15	15	15	15
Operating temperature	-25°C to 55°C									
Operating Mechanism	One hand operated with Quick make & quick break type mechanism									
Maximum Copper cable cross-section (mm²)		35	50	70	95	120	185	240	2x150	2x185
Terminal width (mm)	2P	66	66	66	73	73	96	96	135	135
	3P	25	25	25	25	25	45	45	45	45
Terminal Bolt (mm)		M10x35	M10x35	M10x35	M10x35	M10x35	M12x40	M12x40	M14x40	M14x40
Terminal Bolt tightening torque (N-m max.)		50	50	50	50	50	85	85	140	140
Weight / unit (Kgs)	2P	2.4	2.4	2.4	2.6	2.6	4.1	4.1	8.8	8.8
	3P	2.2	2.2	2.2	2.2	2.2	5.2	5.2	5.2	5.2
Phase Barriers & Terminal shrouds	Available as standard									
Auxiliary contact (1NO+1NC)	Optional									



Specification (100A to 630A, 3 Pole & 4 Pole, 800VAC)

Reference standard									
Reference standard:	IEC 60947-3								
Technical data	FRAME-1			FRAME-2		FRAME-3		FRAME-4	
Rated Operational current (In)	100A	125A	160A	200A	250A	320A	400A	630A	
Conventional Thermal current (Ith) @ 40°C	100A	125A	160A	200A	250A	320A	400A	630A	
Conventional Enclosed Thermal current (Ithe) @ 40°C	100A	125A	160A	200A	250A	320A	400A	630A	
Rated Impulse withstand voltage (Uimp)	6 kV	6 kV	6 kV	8 kV	8 kV	12 kV	12 kV	12 kV	
Rated Insulation voltage (Ui)	1000 Vac	1000 Vac	1000 Vac	1000 Vac	1000 Vac	1000 Vac	1000 Vac	1000 Vac	
Dielectric strength (50 Hz 1 minute)	5 kV	5 kV	5 kV	5 kV	5 kV	8 kV	8 kV	8 kV	
Rated Operational voltage (Ue)	800Vac	800Vac	800Vac	800Vac	800Vac	800Vac	800Vac	800Vac	
Rated Short circuit Making capacity (Icm) (peak RMS value)	7.65 kA	7.65 kA	7.65 kA	13.6 kA	13.6 kA	13.6 kA	17 kA	32 kA	
Rated Short Time withstand current (Icw) for 1 sec.	5 kA	5 kA	5 kA	10 kA	10 kA	10 kA	12 kA	20 kA	
Conditional short circuit current (RMS value)	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	
Power Loss	5W	6W	8W	12W	17W	21W	42W	87W	
Pollution degree	3	3	3	3	3	3	3	3	
Utilization category	AC-22A	AC-22A	AC-22A	AC-22A	AC-22A	AC-22A	AC-22A	AC-22A	
Rated Making capacity	300A	375A	480A	600A	750A	960A	1200A	1890A	
Rated Breaking capacity	300A	375A	480A	600A	750A	960A	1200A	1890A	
Mechanical Life (No. of operations w/o current)	8500	7000	7000	7000	7000	4000	4000	4000	
Electrical Life (No. of operations with current)	1500	1000	1000	1000	1000	1000	1000	1000	
Switch operating torque (N-m)	9.5	9.5	9.5	11	11	17	17	40	
Terminal width (mm)	25	25	25	32	32	40	55	50	
Terminal thickness (mm)	4	4	4	4.5	4.5	5	5	6	
Min. Copper Cable/Busbar size (sq.mm)	35	50	70	95	120	185	30x5x2	50x4x2	
Min. Aluminum Cable/Busbar size (sq.mm)	50	70	95	150	185	240	32x8x2	50x6.5x2	
Switch operating mechanism	Quick Make & break	Quick Make & break	Quick Make & break	Quick Make & break	Quick Make & break	Quick Make & break	Quick Make & break	Quick Make & break	
Operating mode	Front operated	Front operated	Front operated	Front operated	Front operated	Front operated	Front operated	Front operated	
Handle type	Single handle	Single handle	Single handle	Single handle	Single handle	Single handle	Single handle	Double handle	
Terminal type	Lug/Busbar type	Lug/Busbar type	Lug/Busbar type	Lug/Busbar type	Lug/Busbar type	Lug/Busbar type	Lug/Busbar type	Lug/Busbar type	



Specification (250A to 630A, 3 Pole, 440VAC)

Reference standard						
Reference standard	IEC 60947-3					
Technical data	FRAME-1			FRAME-2		
Thermal Current (Ith) 40°C	250A	320A	400A	400A	500A	630A
Rated Insulation voltage Ui (Vac)	1000	1000	1000	1000	1000	1000
Dielectric strength (Vac) 50 Hz 1 minute	3000	3000	3000	3000	3000	3000
Impulse voltage (KV)	12	12	12	12	12	12
Number of poles	3	3	3	3	3	3
Rated Operational Current Ie (A)						
According to IS/IEC: 60947-3						
440 Vac: AC 23A	250	320	400	400	500	630
500 Vac: AC 23A	200	250	315	315	400	500
260 Vdc: DC 21A	250	320	400	400	500	630
260 Vdc: DC 22A	250	320	400	400	500	500
260 Vdc: DC 23A	200	250	400	400	500	500
440 Vdc: DC 21A	250	320	400	400	500	500
440 Vdc: DC 22A	200	250	400	400	500	500
440 Vdc: DC 23A	200	250	400	400	500	500
Motor Power(KW) 415V						
415 Vac without pre-break Aux. Contact	132	160	200	200	220	220
500 Vac without pre-break Aux. Contact	140	220	220	220	220	220
690 Vac without pre-break Aux. Contact	90	150	150	150	150	150
415 Vac with pre-break Aux. Contact	132	160	220	220	250	355
500 Vac with pre-break Aux. Contact	160	220	280	280	300	355
690 Vac with pre-break Aux. Contact	110	220	220	220	250	295
Motor reactive 415 Vac(kVAR)	100	125	150	150	2x125	2x125
Overload Capacity						
Rated short circuit current with associated fuses (kA RMS)	80	80	80	80	80	80
Associated Fuse Rating	250	315	400	400	500	630
Rated peak short circuit making capacity (kA RMS)	7.65	7.65	7.65	17	17	17
Rated short-time withstand current Icw (kA RMS for 1 s)	5	5	5	10	10	10
Making & Breaking Characteristics						
Breaking capacity (A RMS) 415 Vac pf=0.35	2000	2520	3200	200	4000	5040
Making capacity (A RMS) 415 Vac pf=0.35	2500	3150	4000	4000	5000	6300
Endurance						
Mechanical Life (No. of Operations)	10000	10000	10000	10000	10000	10000
Electrical Life (No. of Operations)	1000	1000	1000	1000	1000	1000
Operating Torque (N-m)	12	12	12	15	15	15
Connection						
Terminal width (mm)	25	45	45	45	45	45
Min.Cu.Cable/Bus bar size(mm ²)	120	185	240	240	30x5x2	40x5x2
Min.Al.Cable/Bus bar size(mm ²)	185	240	300	300	32x8x2	40x8x2
Weight (Kgs) 3P	2.3	2.3	2.3	5.9	5.9	5.9



Accessories:

- Handle up to 630A
- Auxiliary contact
- Castle lock
- Extended shaft
- Door interlock assly
- Inter phase barrier
- Terminal shroud



DC Switch Disconnecter



Load break switch (3P 440V AC)

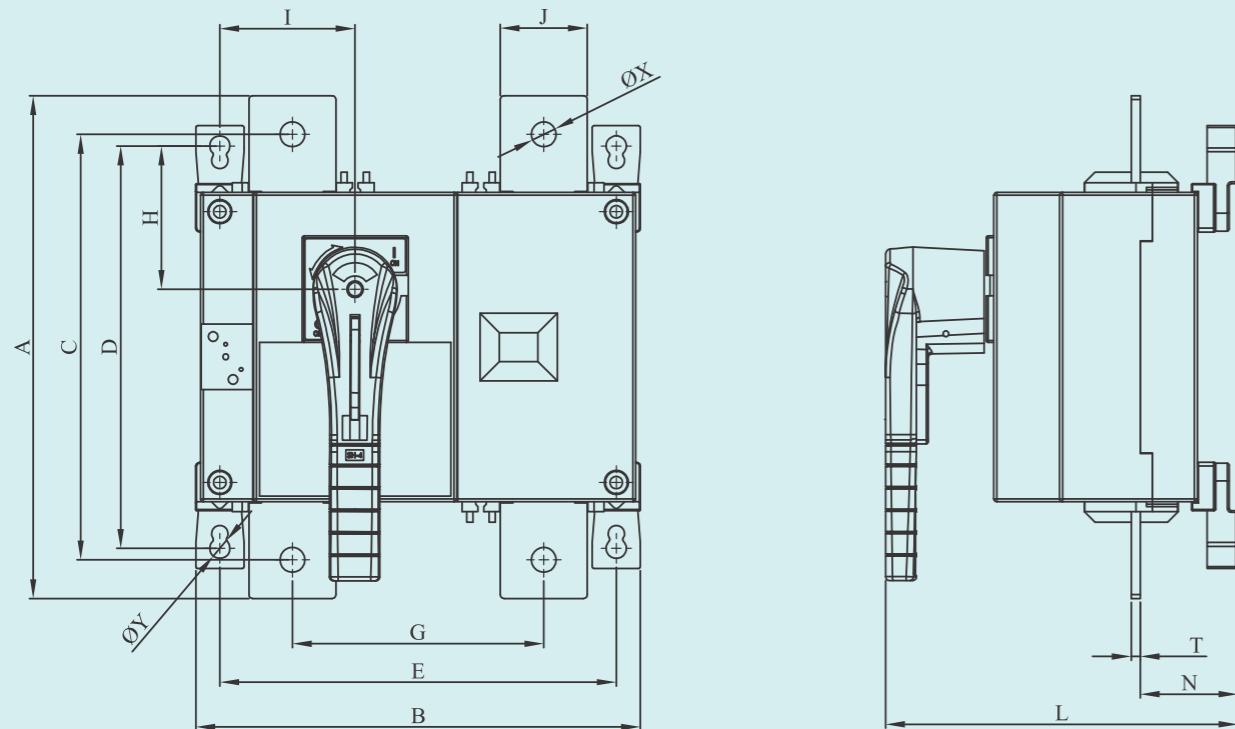


Load break switch (4P 800V AC)



Dimensional Details:
DC SWITCH DISCONNECTOR

2P, 100A to 630A, 1000V DC



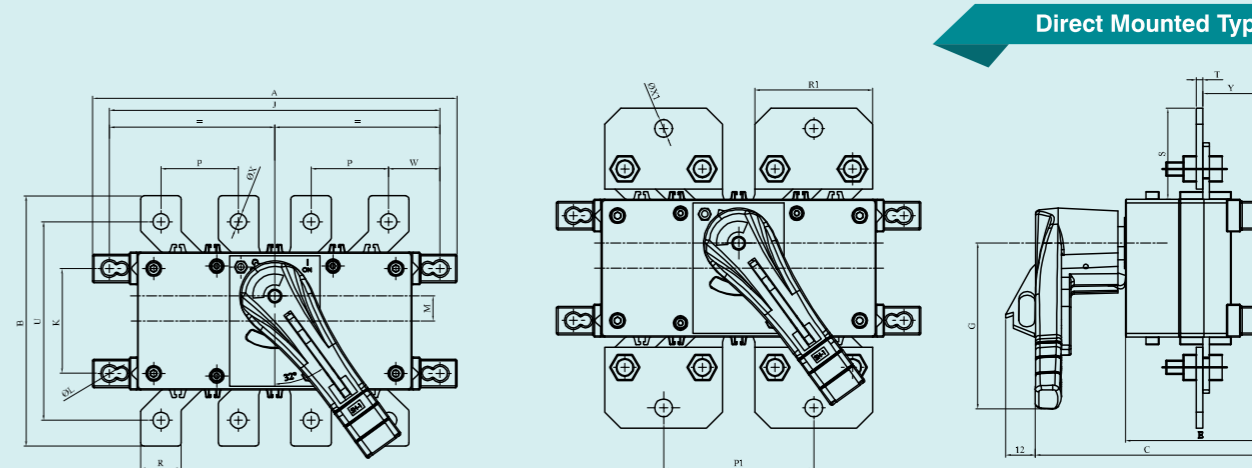
Over all Dimension

Rating	Frame Size	A	B	C	D	E	G	H	I	J	L	N	T	ØX	ØY
100A	1	160	180	135	135	160	100	48	55	25	146	34.5	3.5	11	9
125A	1	160	180	135	135	160	100	48	55	25	146	34.5	3.5	11	9
160A	1	160	180	135	135	160	100	48	55	25	146	34.5	3.5	11	9
200A	1	160	180	135	135	160	100	48	55	25	146	34.5	3.5	11	9
250A	1	160	180	135	135	160	100	48	55	25	146	34.5	3.5	11	9
315A	2	260	230	220	208	205	130	74	70	45	182	50.5	4.7	12.8	10.5
400A	2	260	230	220	208	205	130	74	70	45	182	50.5	4.7	12.8	10.5
500A	2	260	230	220	208	205	130	74	70	45	182	50.5	4.7	14.5	10.5
630A	2	260	230	220	208	205	130	74	70	45	182	50.5	4.7	14.5	10.5



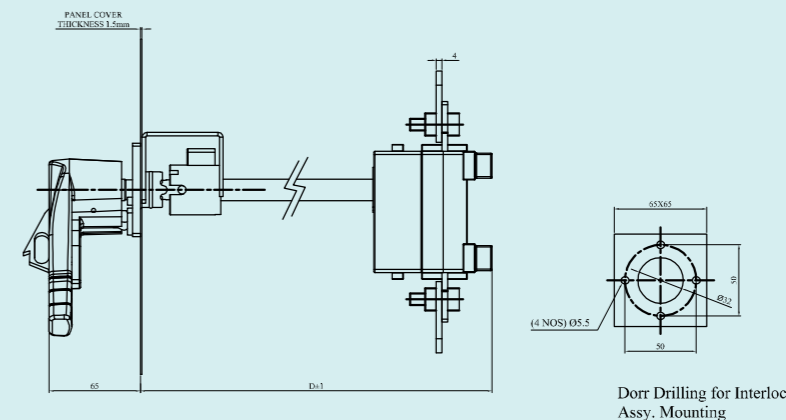
Dimensional Details:
DC SWITCH DISCONNECTOR

2P, 100A to 630A, 1500VDC



Direct Mounted Type

Panel Mounted Type



Dorr Drilling for Interloc Assy. Mounting

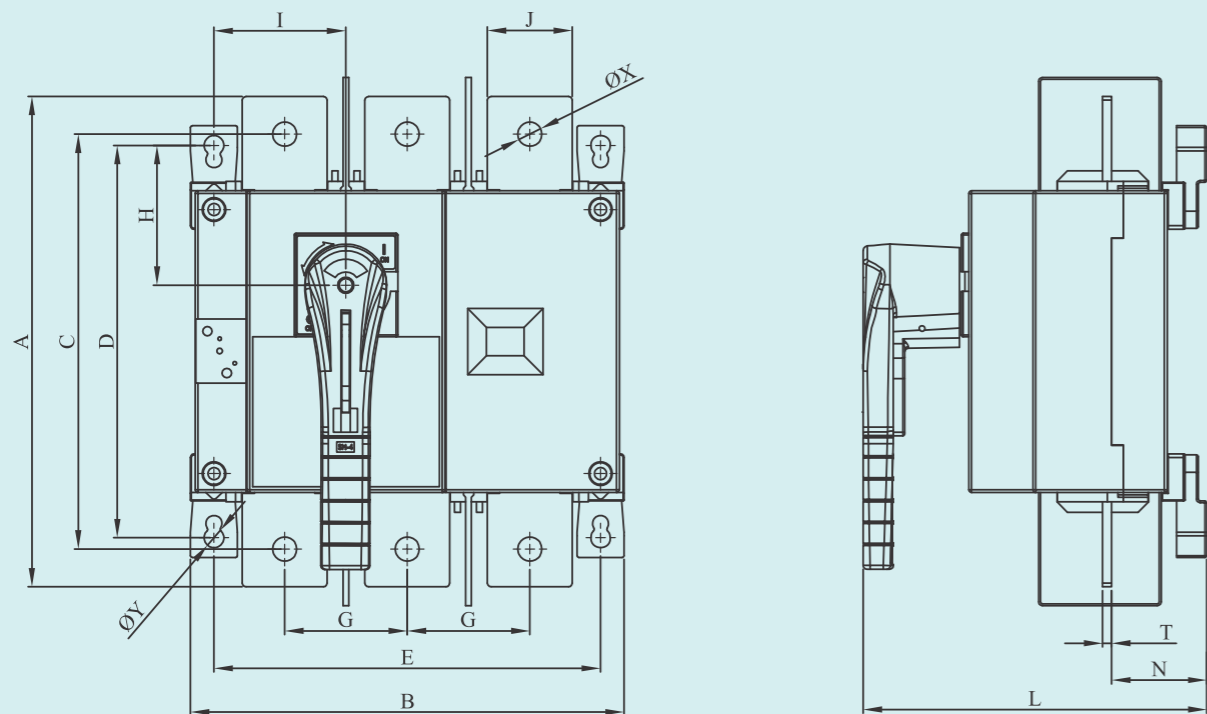
Over all Dimension

Rating	A	B	C	D	E	G	J	K	ØL	M	P	P1	R	R1	S	T	U	W	ØX	ØX1	Y
100A	226	141	139	153	83	116	205	65	9	15	44.7	89	22	66	56	3	118	32	8.5	11	35
125A	226	141	139	153	83	116	205	65	9	15	44.7	89	22	66	56	3	118	32	8.5	11	35
160A	226	141	139	153	83	116	205	65	9	15	44.7	89	22	66	56	3	118	32	10	11	35
200A	226	141	139	153	83	116	205	65	9	15	48	93	25	73	56	4	118	32	10	11	35
250A	226	141	139	153	83	116	205	65	9	15	48	93	25	73	56	4	118	32	10	11	35
315A	286	192	149	165	93	150	265	80	9	20	64	129	32	96	81	4.5	152	33	12.5	13	37
400A	286	192	149	165	93	150	265	80	9	20	64	129	32	96	81	4.5	152	33	12.5	13	37
500A	359	270	185	197	129	150	338	140	10.5	30	80	160	55	135	95	5	230	49	14.5	16	55
630A	359	270	185	197	129	150	338	140	10.5	30	80	160	55	135	95	5	230	49	14.5	16	55



Dimensional Details:
DC SWITCH DISCONNECTOR

3P, 100A to 630A, 1500V DC



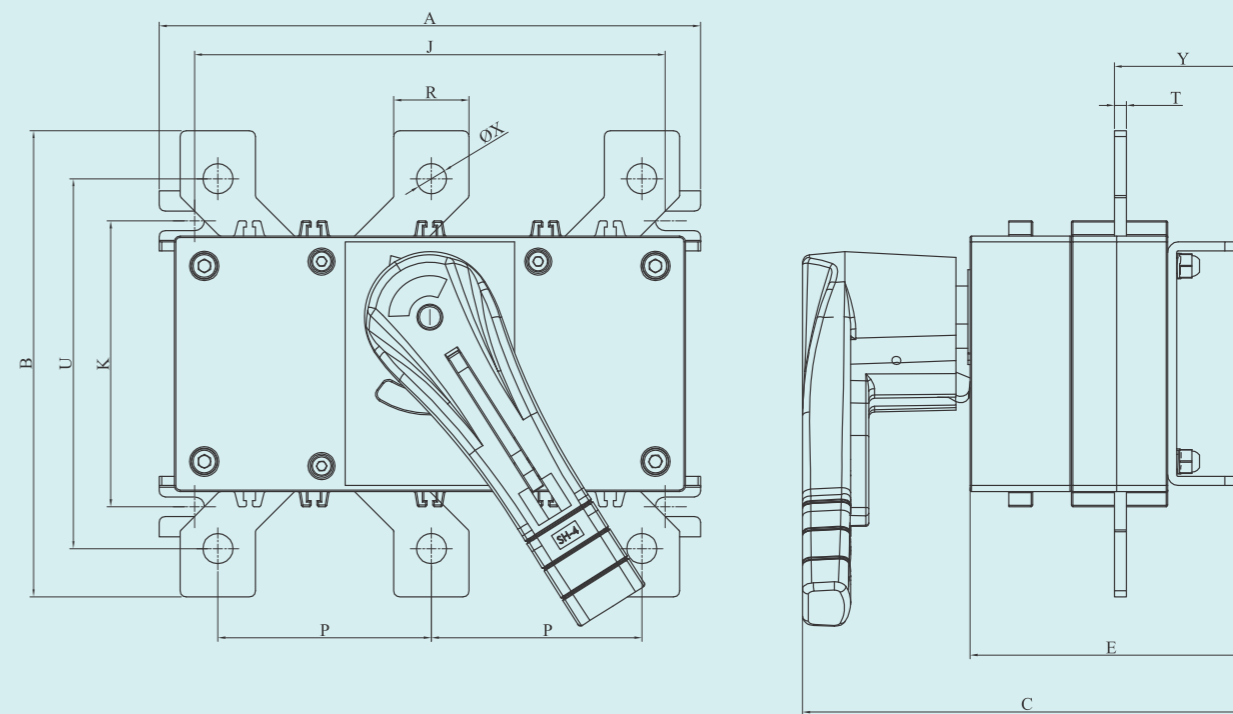
Over all Dimension

Rating	Frame Size	A	B	C	D	E	G	H	I	J	L	N	T	ØX	ØY
100A	1	160	180	135	135	160	50	48	55	25	146	34.5	3.5	11	9
125A	1	160	180	135	135	160	50	48	55	25	146	34.5	3.5	11	9
160A	1	160	180	135	135	160	50	48	55	25	146	34.5	3.5	11	9
200A	1	160	180	135	135	160	50	48	55	25	146	34.5	3.5	11	9
250A	1	160	180	135	135	160	50	48	55	25	146	34.5	3.5	11	9
315A	2	260	230	220	208	205	65	74	70	45	182	50.5	4.7	12.8	10.5
400A	2	260	230	220	208	205	65	74	70	45	182	50.5	4.7	12.8	10.5
500A	2	260	230	220	208	205	65	74	70	45	182	50.5	4.7	12.8	10.5
630A	2	260	230	220	208	205	65	74	70	45	182	50.5	4.7	12.8	10.5



Dimensional Details:
LOAD BREAK SWITCH

3P, 100A to 400A, 800V AC



Over all Dimension

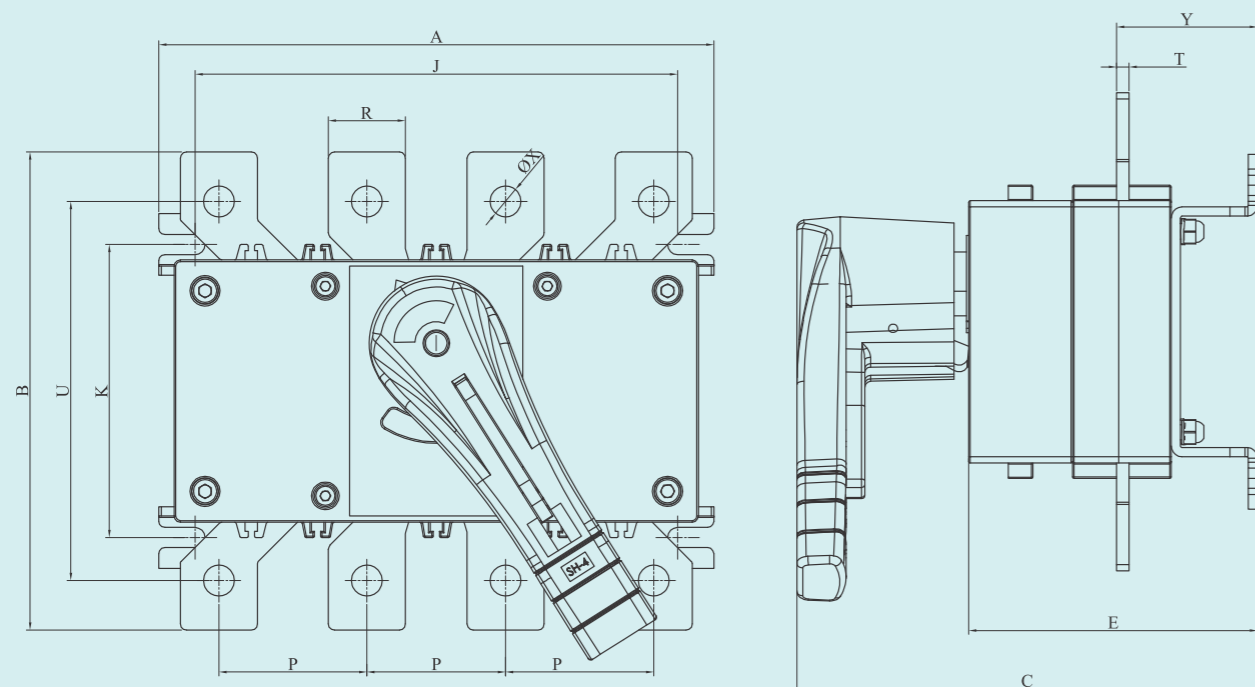
Rating	Frame Size	A	B	C	E	G	J	K	P	R	T	U	ØX	Y
100A	1	180	155	150	94	116	162	95	47	25	4	123	10	46
160A	1	180	155	150	94	116	162	95	47	25	4	123	10	46
200A	2	240	192	160	104	150	217	111	64	32	4.5	152	12.5	48
250A	2	240	192	160	104	150	217	111	64	32	4.5	152	12.5	48
320A	3	304	240	185	144	150	280	180	72	40	5	206	11	52
400A	3	304	270	185	144	150	280	180	80	55	5	230	14.5	52



Dimensional Details:

LOAD BREAK SWITCH

4P, 100A to 400A, 800V AC



Over all Dimension

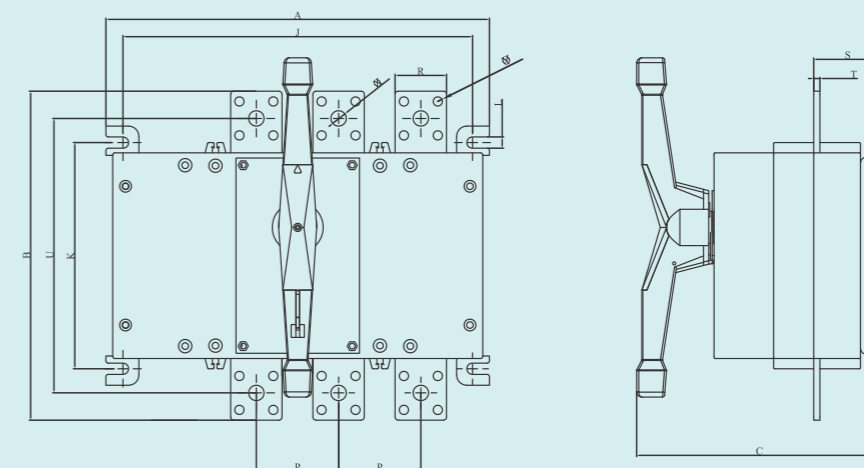
Rating	Frame Size	A	B	C	E	G	J	K	P	R	T	U	ØX	Y
100A	1	180	155	150	94	116	162	95	47	25	4	123	10	46
160A	1	180	155	150	94	116	162	95	47	25	4	123	10	46
200A	2	240	192	160	104	150	217	111	64	32	4.5	152	12.5	48
250A	2	240	192	160	104	150	217	111	64	32	4.5	152	12.5	48
320A	3	304	240	185	144	150	280	180	72	40	5	206	11	52
400A	3	304	270	185	144	150	280	180	80	55	5	230	14.5	52



Dimensional Details:

LOAD BREAK SWITCH

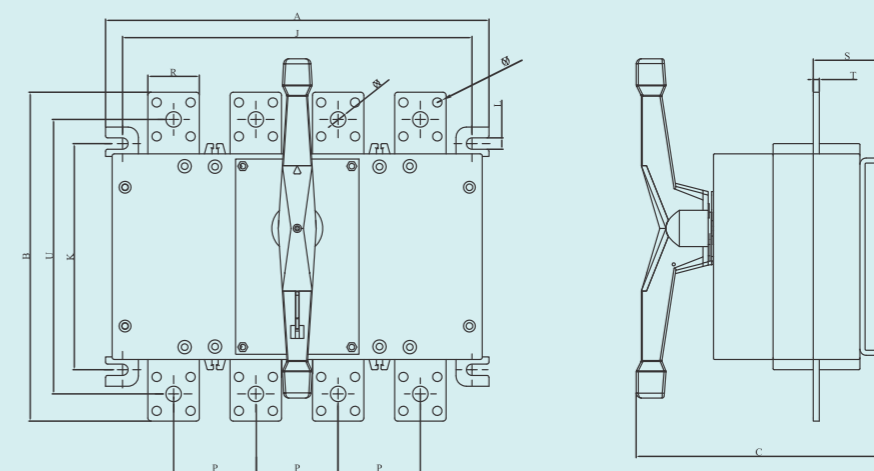
3P, 630A, 800V AC



Over all Dimension

Rating	Frame Size	A	B	C	J	K	P	R	S	T	U	ØX	ØY
630A	4	373	320	235	340	220	80	50	67	6	267	15	9

4P, 630A, 800V AC



Over all Dimension

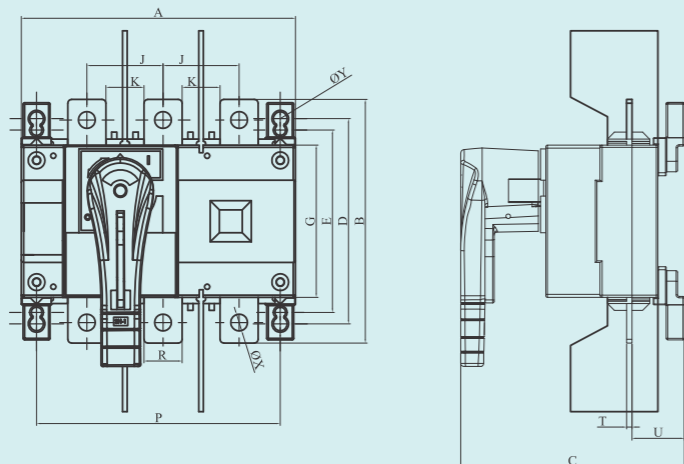
Rating	Frame Size	A	B	C	J	K	P	R	S	T	U	ØX	ØY
630A	4	373	320	235	340	220	80	50	67	6	267	15	9



Dimensional Details:

LOAD BREAK SWITCH

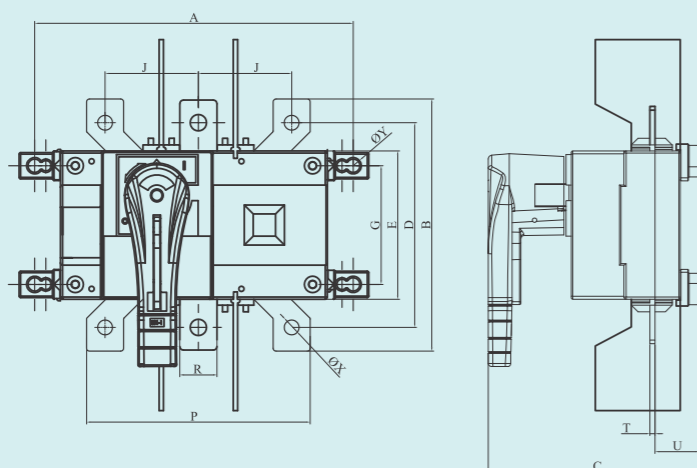
3P, 250A, 440V AC



Over all Dimension

Rating	Frame	A	B	C	D	E	G	J	K	P	R	T	U	ØX	ØY
250A	1	180	160	147	135	120	100	50	25	160	25	3.5	34.5	11	9

3P, 320A to 400A, 440V AC



Over all Dimension

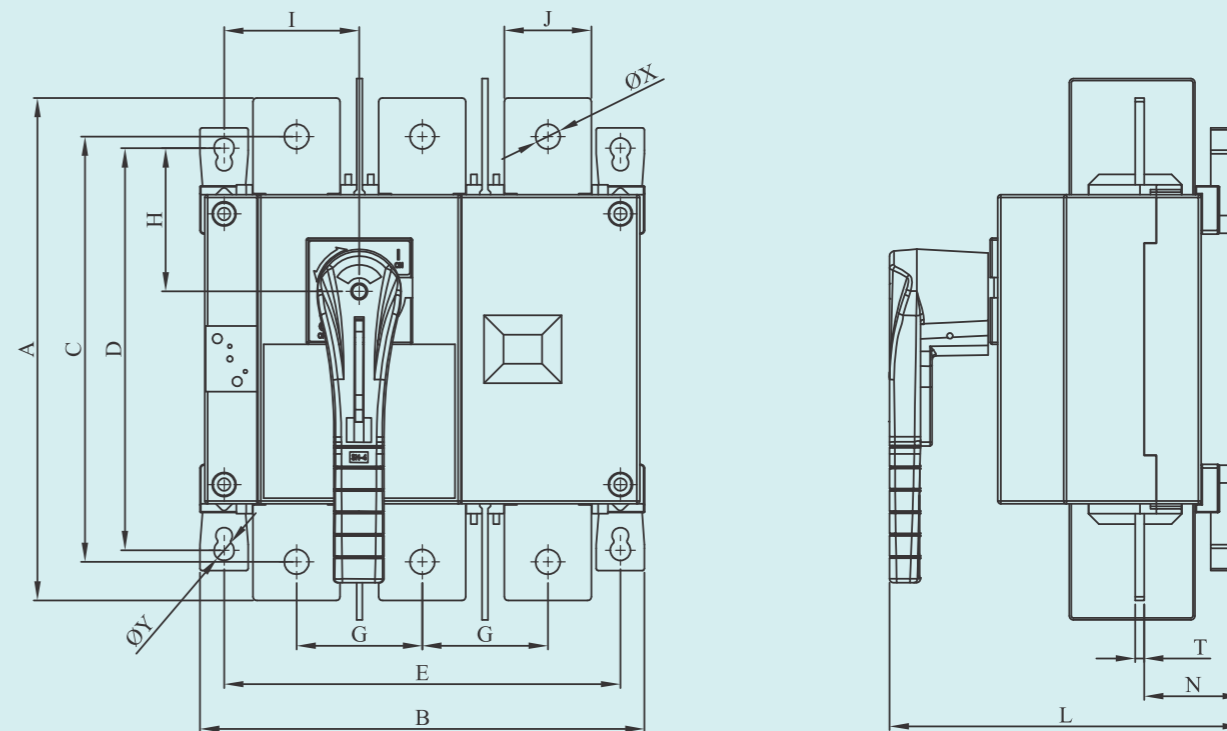
Rating	Frame Size	A	B	C	D	E	G	J	P	R	T	U	ØX	ØY
320A	1	215	202	147	162	100	80	70	185	45	3.5	34.5	12.5	9
400A	1	215	202	147	162	100	80	70	185	45	3.5	34.5	12.5	9



Dimensional Details:

LOAD BREAK SWITCH

3P, 400A to 630A, 440V AC



Over all Dimension

Rating	Frame Size	A	B	C	D	E	G	H	I	J	L	N	T	ØX	ØY
400A	2	260	230	220	208	205	65	74	70	45	182	50.5	4.7	12.8	10.5
500A	2	260	230	220	208	205	65	74	70	45	182	50.5	4.7	12.8	10.5
630A	2	260	230	220	208	205	65	74	70	45	182	50.5	4.7	12.8	10.5